

Project B

Generating thumbnails from images as needed

Overview

In this project you develop a Python program that takes an image filename, and if it determines that no thumbnail exists for the image, creates and stores a thumbnail image and logs that in the mysql database.

This code will be used in our Web app to generate thumbnails only as needed. Right now, for the benefit of testing each project, you've been supplied with both the full-resolution images and the thumbnails. But in the completed system, thumbnails should only be created when the related image is retrieved by a database query. That way disk space is not wasted on thumbnails for images that are never accessed.

This caching is possible by adding a column to the mysql database that indicates whether or not a thumbnail image exists for a given full-resolution image name. If the database indicates that the thumbnails exists, then we need only return the name. But if the database indicates that no thumbnail yet exists, your code should create that thumbnail, update the database, and return the name of the thumbnail just created.

Getting Started

You need not install Flask for this project. But you should download and install the full-resolution image files. You will not need the thumbnails, but you must create the thumbnails directory to hold those you will be creating:

```
cp /var/www/2017_bat.tar /home/vagrant/static/images
mkdir /home/vagrant/static/thumbnails
```

You will also need to load the image data into mysql.

Use the Python file from the previous project – `python_sql_template.py` as a starting point. That program connects to the database and performs a select. Modify that program to create your script to create the thumbnails images.

Tasks

- Add a column to the bats table in mysql to indicate whether or not a thumbnail exists for each image row (alter table add column...). Default that column to N or false or 0 so that initially, at least no image has a thumbnail.
- From a short list of filenames:
- Look up the thumbnail status for each filename
- If there is no thumbnail, generate a thumbnail using techniques such as this:

<http://pillow.readthedocs.io/en/3.1.x/reference/Image.html>

or this:

<http://stackoverflow.com/questions/8631076/what-is-the-fastest-way-to-generate-image-thumbnails-in-python>

- or another technique you find on the web.
- Save thumbnail in /home/vagrant/static/images/thumbnails
- Update the database row for this file to indicate that it now has a thumbnail.